

## Social Heterogeneity and Community Forestry Processes: Reflections from Forest Users of Dhading District, Nepal

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Accepted: 6 September 2010 / Published online: 21 September 2010  
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**Abstract** Community forestry has been characterized as a successful model of community-based forest governance in Nepal that shifts forest management and use rights to local users, often socially heterogeneous in caste, gender and wealth status. This heterogeneity forms the basis of social groups, which differ in their needs, priorities and perceptions regarding community forestry implementation processes. This paper explores the dynamics of three community forestry processes—users’ participation, institutional development, and decision-making and benefit-sharing—among forest user groups as perceived by three social groups of forest users—elite, women and disadvantaged—from eight community forests of Dhading district, Nepal, using qualitative and quantitative techniques. It is found that social groups have differing levels of perception about community forestry processes occurring in their user groups. In particular, social elites differ from women and disadvantaged members of the group in users’ participation in community forestry activities and institutional development of forest user groups. An important policy implication of the findings is that social inclusiveness is central to the effective implementation of community forestry processes, not only to safeguard its past successes but also to internalize the economic opportunities it poses through reducing deforestation and forest degradation in the future.

**Keywords** Social groups · Forest user groups · Institutional development · Users’ participation · Benefit sharing

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## Introduction

Community forestry (CF) has been popularized as a pioneering and successful community-based forest governance model in Nepal (Timsina 2003; Thoms 2008). Its evolution in Nepal dates back to late 1970s when centralized forest policy of earlier decades virtually failed to manage forest resources and rampant deforestation occurred across Nepalese hills, resulting in soil erosion, landslides and downstream flooding (Eckholm 1975; Ives 1988). These environmental problems, partly anthropocentric in nature, raised national and international concern about Nepal's hill environment and, consequently, the CF concept was introduced to control deforestation and to provision forest products to forest dependent communities (Gilmour and Applegate 1985; Mahat et al. 1986; Hausler 1993). Since its inception in Nepal, forest areas have been transferred to traditional users who form the basis of governing institution of the community forests—forest user group (FUG)—with agreed operating rules and forest management plans. Field evidence shows that CF has brought positive outcomes in the form of better forest and environmental conditions (Gautam et al. 2002; Springate-Baginski et al. 2002; Gautam et al. 2004a; Thoms 2008). In a global context, CF is seen as a forest management alternative that maximizes the provision of forest benefits by safe-guarding the environment, improving economic welfare and enriching the social fabric of the community (Sands 2005).

The popularity of and the emphasis on CF program in Nepal has developed it as a part of the local livelihood systems of forest dependent communities (Thoms 2008). The program is widely supported through institutional and policy reforms from the government, and advocacy and implementation support from non-government and donor agencies. A few notable reforms include the development of Master Plan for Forestry Sector (1988), *Forest Act* (1993), *Forest Rules* (1995), and subsequent amendments of forest act and rules in the context of the changing political landscape of Nepal. A detailed account of institutional and policy reforms is outside the scope of this paper, but is widely discussed in the literature (see WB 1978; HMG/ADB/FINNIDA 1988; Bartlett 1992; Malla 2000, 2001; Agrawal and Ostrom 2001; Upreti 2001; Acharya 2002; Nightingale 2003; Gautam et al. 2004b; Gautam 2006; Ojha et al. 2007). As of August 2009, 1,659,775 households, organized into 14,440 FUGs, manage about 22% (1,229,669 ha) of the total forest area of Nepal (DoF 2009). In essence, CF operates on the basis of collective action of forest users who are heterogeneous in many respects including ethnicity, wealth, culture, education and need of forest products.

Social heterogeneity within the user group is a highly contested aspect in community-based resource management and its role in affecting collective action has been debated in the literature. Different propositions are presented: behaviour of self-interested economic individual, emergence of self-governing institution and the social embeddedness hypothesis. As Olson (1971) and Hardin (1968) argued, that collective action among self-interested individuals often is not possible because it would compromise individual interests. Ostrom (1990) and Agarwal and Gibson (1999) argued that collective action in natural resource management among self-interested individuals is possible under specific institutional design principles: a

formal public structure with clear boundaries, transparency, representativeness, and the codification of rules. Such self-governing institutions are successful in small and socially homogeneous groups. On the other hand, McCay and Acheson (1987) and Cleaver (2000, 2002, 2005) argued that collective action is driven by a range of social and cultural norms and values embedded in the society not confined to the structural form of self-governing institution (Cleaver 2002).

Social heterogeneity can increase discrimination against particular social and wealth classes (Agarwal 2001; Bowles and Gintis 2002), create diverse and conflicting values, interests and resource priorities that may lead to a low level of collective action and cooperation, and increase environmental degradation (Leach 1992; Boyce et al. 1999; Kant 2000). Also, heterogeneity can be manifested in various dimensions, and each dimension may operate differently under different circumstances. Ethnic heterogeneity, for example, can make consensus-building and rule enforcement difficult because of assumed problems of distrust and lack of mutual understanding. Different ethnic and social groups may be unwilling to abide by a single set of rules. The socio-cultural composition of users may result in differences of interest that influence the organization of forest governance and management (Varughese and Ostrom 2001).

In the context of Nepal, where socio-cultural division is deeply rooted (Regmi 1971), social heterogeneity has been widely manifested in the forms of caste, wealth and gender (Thoms 2008). Differences in wealth, culture, caste and gender indicate that people may have differing priorities and beliefs about how to manage and use the forests (Adhikari 2005). These elements of social heterogeneity form a basis of different social groups—elite,<sup>1</sup> women, and disadvantaged<sup>2</sup>—within a FUG, and may affect CF processes in Nepal, including (1) users' participation in forestry activities, (2) institutional development of the forest user group, and (3) the decision-making and benefit-sharing mechanism within the group. For example, the representation of upper caste members, generally the social elites, in the executive committee significantly affect whether the rules of CF operation are strict or lenient (Agarwal 2009a, b). Social elites, often some of the relatively wealthier members in society, favour strict forest protection over active use of forests (Neupane 2003; Nightingale 2003). Because they can afford to substitute alternatives to forest products for their own use while favouring a more heavily regulated and protection-oriented community forest, the poorer members of the forest users group, often belonging to disadvantaged group, cannot afford any substitution and thus disproportionately bear the burden of strict forest protection (Adhikari et al. 2004; Thoms 2008). In light of their differing needs, interests and social positioning, an understanding of how different groups of users perceive the implementation process of CF is important to understand the social dynamics within forest user groups.

<sup>1</sup> The group of people who belong to the upper profile in society as a result of one or more of the caste system, economic status and access to information and resources.

<sup>2</sup> The disadvantaged group is defined here as the occupational group of people who are generally in the lower profile in society, due to either economic status or lower position in the Hindu caste system.

For the purpose of this study, three CF processes are defined as follows and listed in Table 2. First, user's participation in forestry activities is defined as involvement of users in forest protection (i.e. as forest guard, watcher), operational plan implementation (i.e. thinning, cleaning) and forest product distribution. Theoretically, forest user groups generally have a two-tiered structure, consisting of a general assembly, comprised of all forest users as members, and an executive committee, selected by the general assembly. The general assembly is the supreme forum of the FUG that decides on important issues, including crafting or modifying any rules and regulations of forest use and management, whereas the executive committee runs the day-to-day activities of the FUG on the behalf of its users. The institutional development process comprises of administrative, financial and networking activities of the FUGs, while decision-making and benefit-sharing incorporates the decision-making process at both the general assembly and executive committee levels. The operational rules and the constitution of the FUGs envisioned equal participation of all users in CF activities and equitable distribution of benefits among users. They also specify the institutional development aspects of the FUGs through financial management, regular meetings and networking activities. Despite such rules being in place, field studies have indicated that the CF operation is often dominated by socio-cultural contexts (Agarwal 2001; Malla 2001; Gautam et al. 2002; Adhikari and Lovett 2006).

Social dominance theory (Pratto et al. 1998; Sidanius and Pratto 1999) is relevant to explain the disparities between social groups in CF processes. The theory states that group-based discrimination tends to be systematic because social ideologies help to coordinate the actions of institution and individuals in a way that members of more powerful groups tend to behave in their own interest more than do members of less powerful groups (i.e. there is behavioural asymmetry) (Sidanius and Pratto 1999). The theory considers institutional discrimination as one of the major forces creating, maintaining and re-creating systems of group-based hierarchy (Pratto et al. 1998). In line of social dominance theory, social division of forest users also represents power disparities in society that have visible impacts in CF processes. As Thoms (2008) argued, a group's interests are better represented when a group member is represented on the executive committee, because the decision-makers tend to make decisions that favour their own interests and the interests of others in the same status group. Because the executive committees are mostly represented by elite members, often disproportionately to their representation within the user group, their decisions might be skewed in favour of social elites. An elite male member of a FUG may have greater influence in the decision-making process of the group compared to a disadvantaged or female member (Neupane 2003; Adhikari 2005; Pandit and Bevilacqua 2007; Ojha et al. 2009). However, Adhikari and Lovett (2006) argued that economic and social heterogeneities have no clear-cut effect on collective action. Examining the wealth and social heterogeneities in collective management of forest resources in Himachal Pradesh of India, Naidu (2009) found that moderate (high) level of social heterogeneity is associated with a low (high) level of collective management.

In the literature, the conjecture between CF processes and social divisions within the FUG is not universal, particularly because no two FUGs are identical at the

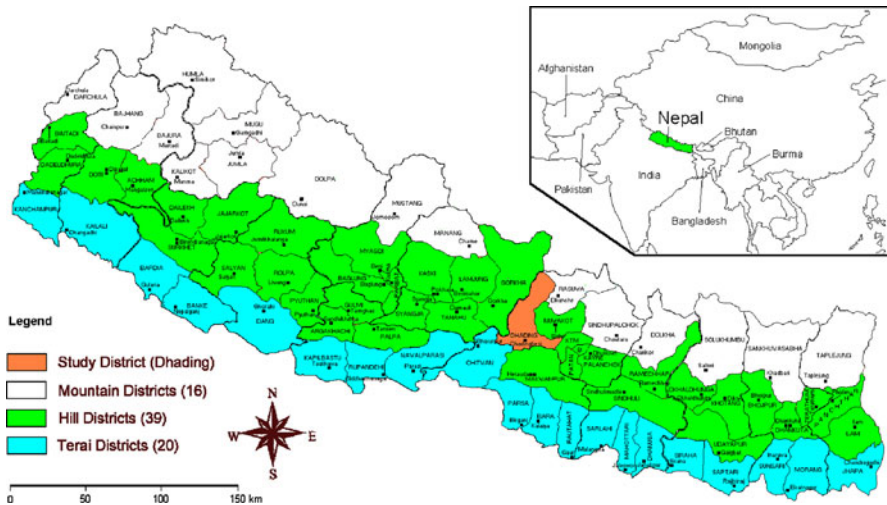
micro-level. Consequently, additional micro-level case studies are important to further enhance understanding for effective policy development to safeguard current successes of CF and to envision any new initiatives (e.g. payment for ecosystem services) that could potentially have social and economic implications in the future. More to the point, the socially inclusive, technologically sound and financially transparent governance of community forests is more important now than ever before in light of potential inclusion of community forests in future carbon trading schemes in the form of ‘reducing emissions from deforestation and forest degradation (REDD)’ projects. Thus, it is imperative to reflect upon the current practice of CF processes from the perspectives of the various social groups to document evidence for future policy and program designs. Specifically, the research objective of this paper is to compare the perceptions of three social groups—elite, women, and disadvantaged—in relation to CF processes at the implementation level, through a comparative study of eight community forests from Dhading district of Nepal. This study differs from earlier CF-related case studies in that it utilizes several indicator questions to represent specific latent concepts related to CF processes, and emphasizes social group consensus to reach group-specific responses to individual survey questions based on collective decision-making.

The paper is organized as follows. The next section deals with the study area, community forests and FUGs; this is followed by a research method section. Finally, the analytical results and discussion of the study are presented, and some policy implications made.

## Study Area, Community Forests, and Forest User Groups

This research was carried out in Dhading district (Fig. 1), near the national capital Kathmandu. This district has diverse landscapes and climate. Hills (72%) and mountains (28%) are the two landscape types in the district with agriculture (38.1%), forest (35%), shrub (13.2%), grass (8.3%) and others (5.4%) as main land-use types (NPC 2001). The altitudinal variations (300 m at Jogimara to 7,110 m at Pawil Himal) form the basis of sub-tropical climate in the valleys to arctic climate in the mountains (MLD 1994). Consequently, several forest types are found in the district, including Hill Sal, Pinus-Schima mixed, Schima-Castanopsis mixed, Oak-Rhododendron mixed, Thusa-Juniper and alpine scrubs (DFO 2002). Tamang, Brahmin, Chhetri, Magar, Newar, Thakuri and Chepong are the major ethnic groups in the district. Some of these ethnic groups are more forest dependent (particularly the Chepong) than others (MLD 1994).

Eight community forests located in the southern part of the district, where majority of the population is concentrated (Fig. 1), were purposively selected for this study. These forests have at least 5 years of CF implementation experience. Three of these forests (Machhindranath, Toplang and Gurdum) are located near Kathmandu. Others are near the main population centres in the district. Alchhidanda and Sasaha Jyamire are close to Dhadingbesi, the district headquarter of Dhading, while Kankalnidevi, Thuloban and Bagmara are near to Gajuri bazaar, another market centre in the district. Except for Toplang and Gurdum, user group



**Fig. 1** Political map of Nepal showing Mountain, Hill, and Terai districts including study district

composition in these community forests is heterogeneous and all of these six are linked to motorable road networks. Table 1 presents the important attributes of these community forests.

The historical accounts of forest use and management vary considerably among these forests. The nearby market centre, accessibility to road networks, increased population and associated demand for forest products are some contributing factors to poor management and open access use of these forests before CF was formally launched. For example, in Sasaha Jyamire community forest, settlers from neighbouring villages encroached on the forest land in the late 1960s, and their land occupation was legalized through cadastral survey in 1977. To prevent further encroachment, traditional users formed a forest protection committee in 1983 and managed the forest based on local norms until it was officially designated as a community forest in 1996. On the other hand, Toplang and Gursum community forests were heavily used prior to 1980s to satisfy the forest products demand of Kathmandu residents in the form of timber, fuelwood and charcoal (especially for blacksmiths, goldsmiths and silversmiths). Additionally, these forests were the hunting places of the then royal family and high-ranking officials. In early 1990s, forest protection committees were formed to protect the remaining forest from further degradation.

## Research Method

Following the research method reported by Babbie (1990), a cross-sectional survey and comparative case study were used to reflect on forest users' perceptions of CF processes due primarily to applicability and economy of these methods. The users of each community forest were divided into three social groups—elite, women, and

**Table 1** Attributes of the selected community forests in Dhading district

Attributes	Sasaha Jyamire	Kankalidevi	Thuloban	Alchhidanda	Bagnara	Machhindranath	Toplang	Gurdum
Location <sup>a</sup>	Murali Bhanyanj VDC-2	Gajuri VDC-1	Pida VDC-2	Nilkantha VDC-1	Kumpur VDC- 6	Naubise VDC-2	Naubise VDC-7	Naubise VDC-8
Area (ha)	77.5	226	211.8	20.5	110.75	19.25	47.52	65
User households #	193	217	244	257	198	278	48	44
User population	1,144	1,208	1,441	1,394	1,328	1,872	280	255
Area/household	0.4016	1.0415	0.868	0.0798	0.5593	0.0692	0.99	1.4130
Forest condition	Good	Good	Good	Degraded	Degraded	Degraded	Degraded	Degraded
Forest type	Mixed Sal, Katus	Mixed Sal, Chilaune	Mixed Sal, Chilaune, Sallo	Regenerated Sal	Mixed Sal, Saj, Sallo	Katus-Chilaune shrubs	Khasru, Banjh, Gurans, Salla	Khasru, Banjh, Kaphal, Gurans
Elevation (masl)	630–840	685–1,000	500–1,200	600–700	600–800	900–1,030	1,200–1,700	1,250–1,650
Year started	1996	1997	1990	1989	1997	1990	1991	1992
Distance to road	Adjoining	Adjoining	Adjoining	Adjoining	Within a mile	Within a mile	Farther away (5 hours walk)	Farther away (5 hours walk)
User committee composition	12 members 2 women	11 members 4 women	15 members 2 women	15 members 3 women	15 members 2 women	11 members 3 women	15 members 3 women	11 members 1 woman
Ethnic groups	Mixed	Mixed	Mixed	Mixed	1 disadvantaged Mixed	1 disadvantaged Mixed	Homogenous (Tamang)	Homogenous (Tamang)
Disadvantaged households #	15	68	30	28	27	11	0	0

Source: DFO (2002)

<sup>a</sup> Location of community forests within a given Village Development Committee (VDC)

disadvantaged. This grouping was relevant for the study because women and disadvantaged users are often hesitant to put forward their opinions if assessed together with the elites due to deeply rooted social divisions in the society (Malla 2001; Upreti 2001; Adhikari et al. 2004). Data were collected through group interviews and secondary sources that include forest management plans, the constitution and meeting minutes of the FUGs.

A questionnaire for group interviews was developed and tested for clarity in the field with three non-participating groups. It consisted of questions related to three key CF processes—forest users' participation in CF activities, institutional development of FUG, and decision-making and benefit-sharing mechanisms in the group. The questions for each CF process were designed with the view to make them simple and user-friendly in the form of indicator questions with two or more response choices. Table 2 summarises the CF processes, related indicator questions, and response choices in rating scale formats. For example, the user participation

**Table 2** Community forestry processes, indicators, and response format

CF process	Indicators/questions	Response format
1. User participation	i. Forest protection ii. Constitution adoption iii. Operational plan implementation iv. Forest management works v. Product distribution vi. Conflict resolution	1 = Low 2 = Fair 3 = High
2. Institutional development		
Administration	i. Established office ii. Regular meeting of FUG iii. Transparency in FUG decisions	1 = No 2 = Yes
Finance	iv. Banking v. Lending within FUG vi. Fairness in fund mobilization	
Networking	vii. Affiliation with FECOFUN viii. Received support from FECOFUN ix. Affiliation with others x. Skill sharing within FUG	
3. Decision-making and benefit-sharing	i. Importance to issues raised by women and disadvantaged members in assembly ii. Participation of women and disadvantaged members in assembly iii. Importance to issues raised by women and disadvantaged members in FUGC iv. Preference to women and disadvantaged in product distribution v. Special product distribution plan for occupational group	1 = No 2 = Yes



process comprised six indicator questions assessed at three levels—low, fair, or high—by social group in each FUG. Similarly, the institutional development and decision-making and benefit-sharing processes consist of 10 and 5 indicator questions respectively, with two point (no or yes) response formats.

Seven key respondents from each social group were selected for group interviews. Respondents for the elite groups were predominantly the FUG committee (FUGC) members, excluding any women and disadvantaged members of the committee. The respondents for women and disadvantaged groups were selected in consultation with a local forest ranger who has been working with these forest users for 3 years. Involvement of the local ranger helped to have an inclusive group of women or disadvantaged members to capture their diversity in each group. With the assistance from the forest ranger, group interviews were conducted in November and December of 2002 to elicit the perceptions of socially diverse users in CF processes. A total of 22 group interviews were conducted; Toplang and Gurdum community forests did not have a disadvantaged group because they were ethnically homogeneous. During the interview process, a covering letter in Nepali language was supplied to each social group describing the purpose and scope of the study. CF process-based indicator questions were asked for each social group and the response choices were explained. The response to each indicator question was recorded once the social group members discussed the possible responses and arrived at a consensus answer. During the interview, emphasis was placed on obtaining group-consensus answer for two reasons. First, responses were required which represent the viewpoint of the majority of users not participating in the interview and second, community forestry itself has been practiced largely based on collective decision-making.

Group responses from interviews were transformed into summative rating scales for each process by adding the numerical score of each indicator questions within the process. Scores were assigned as low = 1, fair = 2, and high = 3 for participation-related questions, and no = 1 and yes = 2 for questions related to institutional development and decision-making and benefit-sharing processes (Table 2). Due to the variation in number of indicator questions and response formats, the summated mean score ranged from 6 to 18 for users' participation with three levels—low (<10), fair (10–14), and high (>14); 10 to 20 for institutional development; and 5 to 10 for decision-making and benefit-sharing. The summated rating scale is particularly useful because it facilitates combining several indicators to measure a broader latent process with an underlying quantitative measurement continuum. The summative scale is more reliable than a single indicator because it can describe thoroughly the complex and latent concept, whereas a single indicator oversimplifies the concept (Spector 1992). Furthermore, a series of indicator questions measuring the same process is more precise because respondents can accurately differentiate these indicator questions underlying a latent process.

Finally, considering the summated rating scale for each process as an independent variable, one-way analysis of variance (ANOVA) was used to compare the mean scores across the three social groups and eight community forests using the Statistical Package for Social Science (SPSS). Where the ANOVA result was significant, mean scores were compared to identify which social groups or

community forests were significantly different using Tukey's multiple comparison tests. The management plan of the community forests, constitution, and meeting minutes were reviewed to gain insights into past decisions and operating modality of user groups.

## Results and Discussion

### Correlation Among Community Forestry Processes

Table 3 presents the correlation result among three CF processes as perceived by forest users. Institutional development of FUGs is found to be positively correlated with users' participation and decision-making and benefit-sharing processes. Notably, users' participation is related to decision-making and benefit-sharing through institutional development. Having a better institutional arrangement—i.e. regular meetings, networking and financial management—within a FUG positively and significantly contributes to both increased perception in users' participation and in decision-making and benefit-sharing mechanisms within the group.

### Descriptive Statistics for Community Forestry Processes

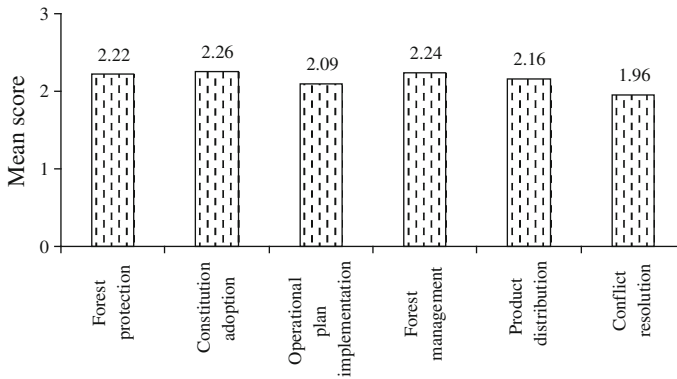
Figure 2 depicts the overall mean responses to individual indicators for users' participation process. Out of six indicator questions, with 3 being the highest possible mean score, the mean score ranges from 1.96 for users' involvement in conflict resolution to 2.26 for constitution adoption. This implies that, in a relative sense, most of the users abide by the rules and norms they develop to govern community forests, but they participate less in resolving any conflicts which emerge within FUGs.

Table 4 reports descriptive statistics on process-specific indicators by both social groups and community forests. Descriptive statistics suggest that the elites have highest summated mean scores for all three processes examined, followed by women and disadvantaged groups, except that the disadvantaged groups have slightly higher mean scores than women for decision-making and benefit-sharing. Results suggest a moderate level (10–14) of user participation among all eight community forests, with greater variability in perceptions for institutional

**Table 3** The correlation between user perceptions of community forestry process related concepts

Concept	Participation	Institutional development	Decision-making and benefit-sharing
Participation	1	0.413* (0.056)	0.348 (0.113)
Institutional development		1	0.402* (0.064)
Decision-making and benefit-sharing			1

\* Significant correlation at the 10% level. Figures in the parentheses are Spearman's rho *P*-values for two tailed tests, with  $n = 22$



**Fig. 2** Indicator questions and mean scores for user participation in CF activities

**Table 4** Mean summative scores (and standard deviations) for community forestry processes by social groups and community forests

Social groups and community forests	Community forestry processes		
	Participation	Institutional development	Decision-making and benefit-sharing
<b>Social groups</b>			
Elites	13.88 <sup>a</sup> (1.25)	17.75 <sup>a</sup> (0.58)	7.63 <sup>a</sup> (1.69)
Women	12.75 <sup>b</sup> (0.46)	16.00 <sup>ab</sup> (1.51)	5.75 <sup>b</sup> (0.71)
Disadvantaged	12.17 <sup>b</sup> (0.41)	15.50 <sup>b</sup> (1.38)	6.00 <sup>ab</sup> (1.10)
<b>Community forests</b>			
Sasaha Jyamire	13.00 <sup>a</sup> (1.00)	16.33 <sup>ab</sup> (0.58)	5.00 <sup>a</sup> (0.00)
Kankalnidevi	12.69 <sup>a</sup> (1.15)	15.67 <sup>ab</sup> (1.15)	7.00 <sup>a</sup> (2.65)
Thuloban	13.70 <sup>a</sup> (2.08)	17.30 <sup>ab</sup> (2.31)	8.00 <sup>a</sup> (1.00)
Alchhidanda	12.33 <sup>a</sup> (0.58)	18.00 <sup>b</sup> (1.00)	7.00 <sup>a</sup> (1.73)
Bagmara	13.00 <sup>a</sup> (0.00)	13.67 <sup>a</sup> (1.16)	6.33 <sup>a</sup> (0.58)
Machhindranath	12.33 <sup>a</sup> (0.58)	16.67 <sup>ab</sup> (1.16)	6.00 <sup>a</sup> (1.73)
Toplang	13.50 <sup>a</sup> (0.50)	18.00 <sup>b</sup> (1.41)	6.00 <sup>a</sup> (0.00)
Gurdum	14.00 <sup>a</sup> (1.00)	17.00 <sup>ab</sup> (0.00)	6.50 <sup>a</sup> (0.71)

Same superscript (i.e. a or b) indicates no significant difference in CF processes between rows by Tukey's multiple comparison test at the 5% significance level. For both social groups and community forests, the superscript 'ab' means that the particular social group (community forest) does not differ from other group (forest) with superscript 'a' or 'b' for a given process

development and decision-making and benefit-sharing. The institutional development process has highest summated mean score for Alchhidanda (18) and Toplang (18) and lowest for Bagmara (13.67). The decision-making and benefit-sharing process receives highest scores for Thuloban (8) and lowest for Sasaha Jyamire (5).

## ANOVA Results for Community Forestry Processes

*User Participation*

Table 5 reports ANOVA results for user participation in CF activities by social group. At 5% significance level, social groups differ significantly ( $P = 0.003$ ) in their perceptions on forest users' participation. Tukey's comparison of means on summated scores across the social groups (Table 4) indicates that the elite group perceives greater user participation in CF activities than the women and disadvantaged groups. These latter groups often share similar perceptions on user participation. The higher level of perceived participation of elites is perhaps due to their greater involvement in the traditional decision-making system in the villages as compared to the other two social groups. For example, out of six indicator questions related to users participation, elites have highest mean scores for forest product distribution (2.41) and conflict resolution (2.15) compared to respective mean scores for women (2.00 and 1.80) and the disadvantaged group (2.04 and 1.92) for these specific questions.

The necessity to search for alternative sources of income for disadvantaged people, instead of voluntarily guarding of the forests, is the indirect cause of the elite's higher participation, as revealed from group discussion during interviews. The discussion further revealed that the social elites, also the wealthier group in the society, often have the capacity to hire someone to guard the forest in their turn and are more involved in developing rules and regulation for the community forests. Consequently, they are seen as having a higher order of participation than other groups.

This result supports the earlier findings related to user participation in the CF processes. For example, Adhikari et al. (2004) found that the elite group dominates the CF process through their active participation, and Agarwal (2001) found that women's needs and concerns are excluded due to their limited bargaining power and

**Table 5** ANOVA table of user participation, institutional development, and decision-making and benefit-sharing among three social groups—elite, women and disadvantaged—within eight community forests in Nepal

Source of variation	Degree of freedom	Sum of squares	Mean sum squares	F-ratio	P-value
User participation					
Between social group	2	10.792	5.396	7.762	0.003
Within social group	19	13.208	0.695		
Institutional development					
Between social group	2	20.500	10.250	4.529	0.025
Within social group	19	43.000	2.262		
Decision-making and benefit-sharing					
Between social group	2	16.125	8.063	5.215	0.016
Within social group	19	29.375	1.546		

level of participation in the same way as suggested by social dominance theory. Moreover, different group of users participate in CF activities as they all otherwise face resource scarcity and deteriorating environmental conditions affecting their livelihoods. But the level of dependency on CF for specific goods and services differentiates the motivation for participation among different groups of users. Elites tends to be more interested in environmental protection as they might have alternative source of forest products from private lands; disadvantaged users tend to be more interested in basic (fodder and fuelwood) and occupational forest products (charcoal—for blacksmith and goldsmith—and agricultural implements such as the plough and yolk). On the other hand, women users tend to be more interested in increased supply of fuelwood, fodder and leaf litters that could potentially save time which they can devote in other activities.

### *Institutional Development of Forest User Groups*

The institutional development process of FUGs includes three main aspects of user group activities—administrative, financial and networking. ANOVA results indicate that institutional development of FUGs is the only CF process that differs significantly among community forests ( $P = 0.023$ ). Among community forests, multiple comparisons of means indicate that Bagmara community forest has relatively poor institutional development compared to Alchhidanda and Toplang community forests (Table 4). Based on users' responses to specific institutional development questions, forest users from Bagmara reported that they have neither established offices nor practiced financial transactions (money lending) within the group and have not developed any affiliation with outside organizations (e.g. Federation of Community Forestry Users Network, FECOFUN).

Users' perceptions on institutional development of FUGs vary considerably among social groups (Table 5). In particular, the pair wise comparisons for social groups in Table 4, as denoted by superscripts, suggest that elites perceived greater institutional development of FUGs than the disadvantaged group while women's perception scores fall between the other two groups. Specific indicator question-based perception scores reveal that the administrative transparency of user committees and fairness on group fund mobilization are two characteristics that differ among social groups. The elite group had mean perception score of 1.88 and 2.00 for administrative transparency and fair mobilization of group funds. In contrast, the women and disadvantaged groups had much lower perception scores for these two questions, of 1.13 and 1.38 for women and 1.0 and 1.17 for the disadvantaged group, respectively.

The findings of this research support the earlier findings on social impacts of community forestry practices and highlighted that such findings are sensitive to the perception of social groups. As argued by Agrawal and Ostrom (2001), despite the successes, CF in Nepal faces problems in both implementation and outcomes. One such problem is main-streaming the women and disadvantaged members into institutional development of the FUG. Generally, women and disadvantaged members are not accustomed to express opinions in formal forums along with elite members of the society. Thoms (2008) found that the silence of these marginalized

groups is often filled by the more confident voices of well-positioned users who are then able to shape the CF institution to their benefit.

### *Decision-Making and Benefit-Sharing*

ANOVA results in Table 5 suggest that the users' perceptions about decision-making and benefit-sharing in community forests differ between social groups. Further analysis (Table 4) reveals differing perceptions of elites and women. Examination of individual indicators of decision-making and benefit-sharing processes shows that there are differences among social groups, particularly on how they perceive the issues of women and disadvantaged groups in their executive committee and general assembly. Women perceive that their issues and concerns are not prioritized in committee meetings and general assembly (mean score = 1.13), while the social elites perceive these issues are being adequately addressed (mean score = 1.88). Disadvantaged groups' perception scores do not differ significantly from the elites for decision-making and benefit-sharing. The silent observer nature of women and disadvantaged groups in general assembly and their minimum representation in executive committees may have contributed to their different perception on decision-making and benefit-sharing processes.

These findings are consistent with social dominance theory (Pratto et al. 1998; Sidanius and Pratto 1999). Social dominance has been reported in community forestry practices in Nepal (Agarwal 2001; Iversen et al. 2006; Thoms 2008). The dominance of elites in decision-making and benefit-sharing processes is attributed to the elites' stronghold on key positions in FUG committees (Adhikari and Shrestha 1999), and less involvement of women in land-use decision-making (Baidya et al. 2001). Consequently, in line of the social dominance theory, social elites make decisions for their own benefit, and ignore the needs of the disadvantaged and women members of the group (Adhikari 2005). CF processes are complex, and as Nightingale (2003) stated, community forests are sites where entrenched social and power relations and cultural practices are constituted, struggled over, and reproduced.

### **Policy Implications**

Community forestry in Nepal is a well-established form of forest governance that has generated positive environmental outcomes. Despite the successes, internalizing the social divisions at the operational level is still a concern for policy-makers and development practitioners. In examining the social heterogeneity of users from Dhading district and their perceived experiences in CF processes at the implementation level, it was found that social groups within a FUG vary considerably in their perception of CF processes. In particular, social elites differ from women and disadvantaged groups in their perception of users' participation in CF activities, institutional development of FUGs, and decision-making and benefit-sharing within FUGs.

The differing perceptions among social groups are partly due to the deeply rooted culture where elites dominate decision-making in the society and other groups remain silent observers and followers. In the long run, this differentiation could potentially be counterproductive to the whole FUG if social inclusiveness is not reflected in CF implementation, because the success of CF is rooted in collective decision-making and abiding by the societal norms and rules. If decisions are not obeyed or are biased towards any specific group, others will counter this by disobeying the norms. More importantly, with CF emerging as a potential REDD implementation project, the needs and voices of disadvantaged groups need to be clearly reflected in the CF processes at implementation level.

The empowerment of women and disadvantaged groups in CF processes with equitable sharing of both rights and responsibilities is an important consideration in strengthening CF practice. Increasing the quota of women and disadvantaged group member in executive committees, offering due considerations to concerns and views of women and disadvantaged groups in formal fora, and engaging them in the institutional development of FUGs would help to minimize differential perception of CF processes among these groups. Additionally, specially designed programs for women and disadvantaged members, such as awareness raising, educational tours, workshops and training, and mediated discussions in general assembly and executive committee meetings, would be a helpful tools. Furthermore, it is important to internalize socio-cultural differences in designing new policy initiatives—for example, payment for ecosystem services—where the voices and concerns of women and disadvantaged members are fully incorporated. Thus, the study findings have far-reaching policy implications in designing inclusive decision-making, equitable benefit-sharing and fair participation-based policies for effective implementation of CF processes in the light of new opportunities and challenges. Therefore, policy makers and practitioners need to consider closely CF policy and practices as a part of social, economic and political processes and recognize CF policy as a critical part of the broader policies and programs that affect societies in Nepal.

**Acknowledgments** We acknowledge the support and suggestions received in completion of this work from William Bentley and Valarie Luzadis of SUNY College of Environmental Science and Forestry, and Peter Castro of Syracuse University. We would also like to thank Ravi Pandit and Loknath Lamsal for their support in fieldwork, and anonymous referees and the editor of this journal for their constructive comments and suggestions.

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